



## *Schedule*

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### May 23 TUESDAY (Day One)

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Welcome 8:15 – 8:30 am

Keynote Session 8:30 am – 9:30 am

**John Phillips**, Chief Scientist, CIA  
“Information Technology Research for National Security”

Session T1: 65 minutes 9:40 – 10:45 am

#### **T1-A: Data Analysis and Knowledge Discovery**

Interactive Refinement of Filtering Queries on Streaming Intelligence Data  
*Yiming Ma, Dawit Yimam Seid (25)*

SemanticSpy: Suspect Tracking Using Semantic Data in a Multimedia Environment  
*Amit Mathew, Amit Sheth, Leonidas Deligiannidis (20)*

An Embedded Bayesian Network Hidden Markov Model for Digital Forensics  
*Olivier De Vel, Nianjun Liu, Terry Caelli, Tiberio S. Caetano (20)*

#### **T1-B: Surveillance and Emergency Response**

Motion-Alert: Automatic Anomaly Detection in Massive Moving Objects  
*Xiaolei Li, Jiawei Han, Sangkyum Kim (25)*

Venn Diagram Construction of Internet Chatroom Conversations  
*James F. McCarthy, Mukkai S. Krishnamoorthy (20)*

Measures to Detect Word Substitution in Intercepted Communication  
*S.W. Fong, David B. Skillicorn, D. Roussinov (25)*

#### **T1-C: Terrorism Informatics and Countermeasures**

Chair: Joshua Sinai

Practical Algorithms for Destabilizing Terrorist Networks  
*Nasrullah Memon, Henrik Legind Larsen (25)*

Rational choice deterrence and Israeli counter-terrorism  
*Don Radlauer (20)*

Appetites for destruction: Organization Learning and Terrorism  
*Brian Jackson (invited) (20)*

COFFEE BREAK 10:45 – 11:00 am

**T2-A: Intelligence Analysis and Knowledge Discovery**

Iterative Relational Classification Through Three-State Epidemic Dynamics  
*Aram Galstyan, Paul R. Cohen (25)*

A Dictionary-Based Approach to Fast and Accurate Name Matching in Large Law Enforcement Databases  
*Olcay Kursun, Anna Koufakou, Bing Chen, Michael Georgiopoulos, Kenneth M. Reynolds, Ron Eaglin (25)*

Analyzing Entities and Topics in News Articles Using Statistical Topic Models  
*David Newman, Chaitanya Chemudugunta, Padhraic Smyth, Mark Steyvers (25)*

**T2-B: Access Control, Privacy, and Cyber Trust**

Cost-Sensitive Access Control for Illegitimate Confidential Access by Insiders  
*Young-Woo Seo, Katia Sycara (25)*

Privacy Preserving DBSCAN for Vertically Partitioned Data  
*Artak Amirbekyan, V. Estivill-Castro (25)*

Inferring Privacy Information from Social Networks  
*Jianming He, Wesley W. Chu, Zhenyu (Victor) Liu (25)*

**T2-C: Terrorism Informatics and Sources of Data**

Chair: Brian Jackson

Memorial Institute for Prevention of Terrorism (MIPT) Databases and Visualization Tools  
*James Ellis (15)*

RAND Incident Database  
*Brian Jackson (15)*

ICT Incident Database  
*Yael Shahar (15)*

Global Incident Database, University of Maryland  
*Laura Dugan (15)*

Dark Web databases of extremist groups artifacts (websites, forums, multimedia)  
*Edna Reid (15)*

**T3-A: Intelligence Analysis, Knowledge Discovery, and Information Dissemination**

Using Importance Flooding to Identify Interesting Networks of Criminal Activity

*Byron Marshall, Hsinchun Chen (25)*

Detecting Deception in Person-of-Interest Statements

*Christie Fuller, David P. Biros, Mark Adkins, Judee K. Burgoon, Jay F. Nunamaker Jr., Steven Coulon (20)*

A Framework for Exploring Gray Web Forums: Analysis of Forum-Based Communities in Taiwan

*Jau-Hwang Wang, Tianjun Fu, Hong-Ming Lin, Hsinchun Chen (20)*

Personal Information Management (PIM) for Intelligence Analysis

*Antonio Badia (20)*

Synergy: A Policy-Driven, Trust-Aware Information Dissemination Framework

*Ragib Hasan and Marianne Winslett (20)*

**T3-B: “Biosecurity and Public/Animal Health” (Invited Speakers)**

Greg Cooper, University of Pittsburgh: RODS and Bayesian Biosurveillance

Marty Vanier, Kansas State Univ.: Animal Health and Biosecurity

Carlos Castillo-Chavez, Arizona State Univ.: Biosecurity Modeling

Daniel Ford, IBM Almaden Research Center: Spatial-Temporal Modeling for Infectious Diseases

Bill Lober, Univ. of Washington: Ontology and Public Health Information Systems

**T3-C: Combating Terrorism**

The Role of Information Superiority in the Global War on Terrorism

*Major General Annette Sobel, United States Air Force (invited) (25)*

Measuring Effectiveness of Anti-terrorism Programs Using Performance Logic Models

*Robert G. Ross (invited) (25)*

Combating Terrorism Insurgency Resolution Software: A Research Note

*Joshua Sinai (invited) (25)*

A First Look at Domestic and International Global Terrorism Events, 1970-1997

*Laura Dugan, Gary LaFree, Heather Fogg (invited) (25)*

**T4-A: Intelligence Analysis and Knowledge Discovery**

The Hats Simulator and Colab: An Integrated Information Fusion Challenge Problem and Collaborative Analysis Environment

*Clayton T. Morrison, Paul R. Cohen (25)*

Semantic Analytics Visualization

*Leonidas Deligiannidis, Amit P. Sheth, Boanerges Aleman-Meza (25)*

Database Security Protection Via Inference Detection

*Yu Chen, Wesley W. Chu (20)*

Entity Workspace: An Evidence File That Aids Memory, Inference, and Reading

*Eric A. Bier, Edward W. Ishak, Ed Chi (20)*

**T4-B: Surveillance and Emergency Response**

Finding Hidden Group Structure in a Stream of Communications

*J. Baumes, M. Goldberg, Mykola Hayvanovych, M. Magdon-Ismael, William Wallace, Mohammed Zaki (25)*

Collective Sampling and Analysis of High Order Tensors for Chatroom Communications

*Evrin Acar, Seyit A. C, amtepe, Bulent Yener (25)*

Experimental Analysis of Sequential Decision Making Algorithms for Port of Entry Inspection Procedures

*Saket Anand, David Madigan, Richard Mammone, Saumitr Pathak, Fred Roberts (25)*

DrillSim: A Simulation Framework for Emergency Response Drills

*Vidhya Balasubramanian, Daniel Massaguer, Sharad Mehrotra, Nalini Venkatasubramanian (25)*

**T4-C: Terrorism informatics and Threat Analysis**

Chair: Alvin Powell, Federal Bureau of Investigation

Indicators of Threat: Reflecting New Trends

*Yael Shahar (25)*

Analyzing the Terrorist Social Networks with Visualization Tools

*Christopher C. Yang, Nan Liu, Marc Sageman (25)*

Exploring the Dark Side of the Web: Collection and Analysis of U.S. Extremist Online Forums

*Yilu Zhou, Jialun Qin, Guanpi Lai, Edna Reid, Hsinchun Chen (20)*

Content Analysis of Jihadi Extremist Groups Videos

*Arab Salem, Edna Reid, Hsinchun Chen (20)*

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| <b>POSTER AND DEMONSTRATION SESSION with CONFERENCE RECEPTION</b> | <b>6:00 – 9:30 pm</b> |
| Poster Session I  | 6:00 – 7:30 pm        |
| ISI 2006 Awards Ceremony  | 7:00 – 7:20 pm        |
| Poster Session II   | 8:00 – 9:30 pm        |

*Note:* Authors will shortly be assigned to either Poster Session I or Poster Sesssion II.

\*\*\* See next page for Wednesday's schedule \*\*\*

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## May 24 WEDNESDAY (Day Two)

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Conference Announcements

7:50 – 8:00 am

**PLENARY PANEL:**

8:00 – 9:30 am

"ISI Research Challenges: Perspectives from Funding Agencies"

*Panelists:*

Art Becker, Intelligence Technology Innovation Center

Larry Brandt, National Science Foundation

Robert Ross, Department of Homeland Security

Bruce Baicar, Department of Homeland Security

Session W1: 85 minutes

9:40– 11:05 am

**W1-A: Data Mining for Homeland Security** (*Invited Panelists*)

Jaiwei Han, University of Illinois at Urbana-Champaign

Paul Kantor, Rutgers University

Bhavani Thuraisingham, University of Texas at Dallas

Hsinchun Chen, University of Arizona

**W1-B: Emerging Applications**

Computational Modeling and Experimental Validation of Aviation Security Procedures

*Uwe Gl"asser, Sarah Rastkar, Mona Vajihollahi (25)*

Multi-perspective Video Analysis of Persons and Vehicles for Enhanced Situational Awareness

*Sangho Park, Mohan M. Trivedi (25)*

Fast Pedestrian Detection Using Color Information

*Yan Wu Xu, X.B. Cao, Hong Qiao, Fei-Yue Wang (20)*

Distributing the Cost of Securing a Transportation Infrastructure

*Sudarshan S. Chawathe (20)*

**W1-C: Terrorism informatics**

Chair: Yael Shahr

Tracing the Event Evolution of Terror Attacks from On-Line News

*Christopher C. Yang, Xiaodong Shi, Chih-Ping Wei (25)*

On the Topology of the Dark Web of Terrorist Groups

*Jennifer Xu, Hsinchun Chen, Yilu Zhou, Jialun Qin (25)*

Visualizing Authorship for Identification

*Ahmed Abbasi, Hsinchun Chen (20)*

Multi-document Summarization for Terrorism Information Extraction  
*Fu Lee Wang, Christopher C. Yang, Xiaodong Shi (20)*

**COFFEE BREAK**

11:05 – 11:20 am

Session W2: 60 minutes

11:20 am – 12:20 pm

**W2-A: Data Analysis, Knowledge Discovery, and Information Dissemination**

Strategic Intelligence Analysis: From Information Processing to Meaning-Making  
*Yair Neuman, Liran Elihay, Meni Adler, Yoav Goldberg, Amir Viner (20)*

Access Control Requirements for Preventing Insider Threats  
*Joon S. Park, Joseph Giordano (20)*

Towards Optimal Police Patrol Routes with Genetic Algorithms  
*Danilo Reis, Adriano Melo, Andr e L.V. Coelho, Vasco Furtado (20)*

**W2-B: Surveillance, Bioterrorism, and Emergency Response**

Fighting Fear of a Bioterrorism Event with Information Technology: Real-World Examples and Opportunities  
*David A. Bray, Benn R. Konsynski (20)*

Covering Based Granular Computing for Conflict Analysis  
*William Zhu, Fei-Yue Wang (20)*

Sanitization of Databases for Refined Privacy Trade-Offs  
*Ahmed HajYasien, Vladimir Estivill-Castro, Rodney Topor (20)*

**W2-C: Infrastructure Protection and Cyber Security**

A Novel Mechanism to Defend Against Low-Rate Denial-of-Service Attacks  
*Wei Wei, Yabo Dong, Dongming Lu, Guang Jin, Honglan Lao (25)*

Integrating IDS Alert Correlation and OS-Level Dependency Tracking  
*Yan Zhai, Peng Ning, Jun Xu (20)*

Suspect Vehicle Identification for Border Safety with Modified Mutual Information  
*Siddharth Kaza, Yuan Wang, Hsinchun Chen (20)*

**LUNCH: 90 minutes**

12:20 – 1:50 pm

Session W3: 100 minutes

1:50 – 3:30 pm

**W3-A: Knowledge Discovery and Data Management**

Computer-Mediated Collaborative Reasoning and Intelligence Analysis  
*Douglas Yeung, John Lowrance (25)*

Towards Automatic Event Tracking

*Clive Best, Bruno Pouliquen, Ralf Steinberger, Erik Van der Goot, Ken Blackler, Flavio Fuart, Tamara Oellinger, Camelia Ignat (25)*

Design and Implementation of a Policy-Based Privacy Authorization System

*HyangChang Choi, SeungYong Lee, HyungHyo Lee (25)*

A Review of Public Health Syndromic Surveillance Systems

*Ping Yan, Daniel Zeng, Hsinchun Chen (25)*

### **W3-B: Infrastructure Protection and Cyber Security**

Hybrid Modeling for Large-Scale Worm Propagation Simulations

*Eul Gyu Im, Jung Taek Seo, Dong-Soo Kim, Yong Ho Song, Yongsu Park (20)*

Worm Traffic Modeling for Network Performance Analysis

*Yufeng Chen, Yabo Dong, Dongming Lu, Yunhe Pan, Honglan Lao (20)*

Analysis of Abnormalities of Worm Traffic for Obtaining Worm Detection Vectors

*Zhengtao Xiang, Yufeng Chen, Yabo Dong, Honglan Lao (20)*

A Two-Tier Intrusion Detection System for Mobile Ad Hoc Networks – A Friend Approach

*Shukor Abd Razak, Steven Furnell, Nathan Clarke, Phillip Brooke (20)*

SG-Robot: CDMA Network-Operated Mobile Robot for Security Guard at Home

*Je-Goon Ryu, Se-Kee Kil, Hyeon-Min Shim, Sang-Moo Lee, Eung-Hyuk Lee, Seung-Hong Hong (20)*

### **W3-C: Surveillance and Emergency Response**

Technology Integration through Demonstration Scenarios

*Mike Lind, Pacific Northwest National Laboratory [invited] (25)*

Adaptive Method for Monitoring Network and Early Detection of Internet Worms

*Chen Bo, Bin Xing Fang, Xiao Chun Yun (25)*

Naturally Occurring Incidents as Facsimiles for Biochemical Terrorist Attacks

*Jamie L. Griffiths, Donald J. Berndt, Alan R. Hevner (25)*

Integration of Instance-Based Learning and Text Mining for Identification of Potential Virus/Bacterium as Bio-terrorism Weapons

*Xiaohua Hu, Xiaodan Zhang, Daniel Wu, Xiaohua Zhou, Peter Rumm (20)*

**COFFEE BREAK**

**3:30 – 3:45 pm**

**W4-A: Knowledge Discovery and Emerging Applications**

Intelligent Face Recognition Using Feature Averaging

*Adnan Khashman, Akram Abu Garad (25)*

A Multi-layer Naive Bayes Model for Approximate Identity Matching

*G. Alan Wang, Hsinchun Chen, Homa Atabakhsh (20)*

Spatial-Temporal Cross-Correlation Analysis: A New Measure and a Case Study in Infectious Disease Informatics

*Jian Ma, Daniel Zeng, Hsinchun Chen (20)*

**W4-B: Infrastructure Protection and Surveillance**

Attacking Confidentiality: An Agent Based Approach

*Kapil Kumar Gupta, Baikunth Nath, Kotagiri Ramamohanarao, Ashraf U. Kazi (25)*

Viability of Critical Mission of Grid Computing

*Fangfang Liu, Yan Chi, Yuliang Shi (25)*